

BEFORE THE STATE OF WASHINGTON
ENERGY FACILITY SITE EVALUATION COUNCIL

IN RE APPLICATION NO. 99-1

EXHIBIT _____ (JL-T)

SUMAS ENERGY 2 GENERATION
FACILITY

APPLICANT'S PREFILED TESTIMONY

WITNESS : JAMES LITCHFIELD

Q. Please state your name and business address.

A. My name is James W. Litchfield. My address is 101 SW Main Street, Suite 900,
Portland, Oregon 97204.

Q. Can you remind the Council of your background and experience?

A. I am currently the President of Litchfield Consulting Group, Inc. (LCG), which
provides consulting services concerning energy and salmon recovery issues. LCG's
clients include public and private utilities, independent power producers, industrial
customers, regulatory agencies, and regional planning commissions. My professional
focus with respect to energy issues is to assist the electric power industry with

EXHIBIT ____ (JL-T)
JAMES LITCHFIELD
PREFILED TESTIMONY - 1

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3099
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1 strategic planning, selection of power supply resources, and negotiating power
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3 contracts.
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6 Before forming LCG, I was the Director of Power Planning for the Northwest Power
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8 Planning Council from 1981 until January 1992. I have a Masters degree in
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10 Management from MIT, and a Bachelors of Science degree in Civil Engineering from
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12 the University of Washington.
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17 **Q. What have you been doing since you appeared before the Council last August?**

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19 **A.** A significant portion of my consulting practice has been devoted to emergency
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21 hydropower operations due to the current drought. I currently represent the states of
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23 Montana and Idaho on salmon recovery and hydropower operations issues. The
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25 energy crisis in the West has also put considerable demand on my time for assistance
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27 with analysis of the events leading up to the crisis and the sequence of actions that
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29 drove extreme market price volatility and in some cases blackouts. I have given
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31 several presentations on the Western energy crisis and I have provided testimony to
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33 the Federal Energy Regulatory Commission (FERC) on behalf of a group of load
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35 serving utilities in the West.
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39 **Q. What subject will your testimony address?**

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41 **A.** I understand that the Council's first prehearing order (Council Order No. 759) invited
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43 the parties to present evidence regarding "the changed circumstances in the power
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45 market." My testimony will address that issue.
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1 **Q. What has changed about the power market since early last August?**

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3 **A.** Several events have occurred during the past year that are stark indicators of the
4 deficit in generation supplies that I discussed in my previous testimony:
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9 First, there have been numerous warnings about power shortages, declarations of
10 "power emergencies", appeals for emergency load reductions and actual blackouts.
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15 Second, there has been dramatic price volatility in western power markets.
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19 Third, this price instability and overall price levels have resulted in numerous large
20 power users curtailing operations and reducing jobs in the region.
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25 Fourth, environmental regulations were waived to allow existing facilities to increase
26 generation beyond permitted levels, and to allow large amounts of internal
27 combustion engines to be installed and operated on diesel fuel as "emergency"
28 generation to meet the region's loads.
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34 Fifth, the instability in the market has resulted in an enormous transfer of money from
35 some participants in the market to others.
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41 Sixth, BPA was forced to declare a power emergency which extended to include most
42 of the spring and summer of this year. The BPA emergency largely curtailed normal
43 flows and spills provided to increase survival of salmon and steelhead listed for
44 protection under the Endangered Species Act.
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3 Seventh, the Bonneville Power Administration announced in June that it would
4 increase its rates by 46 percent beginning October 1st and just recently has announced
5 that it will need to further increase rates to pay for its market exposure.
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10 **Q. Let's take each of the items you listed in turn. First, power emergencies and**
11 **blackouts. What has happened since you testified in August 2000?**
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14 **A.** During the day that I appeared before the Council in August 2000, there was a power
15 emergency declared by the California Independent System Operator, (CalISO). This
16 was just the first of what was going to be a long string of emergencies caused by the
17 CalISO's inability to find sufficient power supplies to meet California's loads for
18 most of last winter. Problems with adequate power supply continued through the
19 spring of this year. I have prepared the following graph of the Stage 1, 2 & 3
20 Emergencies that the CalISO has declared by month to illustrate the protracted period
21 of supply imbalance in California. This figure illustrates that California has declared
22 75 Stage 1, 65 Stage 2 and 38 Stage 3 Emergencies. During some days, the CalISO
23 declares multiple emergencies as power conditions deteriorate. This can cause an
24 emergency to begin as Stage 1, to worsen to Stage 2, and finally to result in a Stage 3
25 emergency which frequently means that rolling blackouts are needed to reduce loads
26 to available generation. The CalISO uses the following definitions for each level of
27 Emergency:
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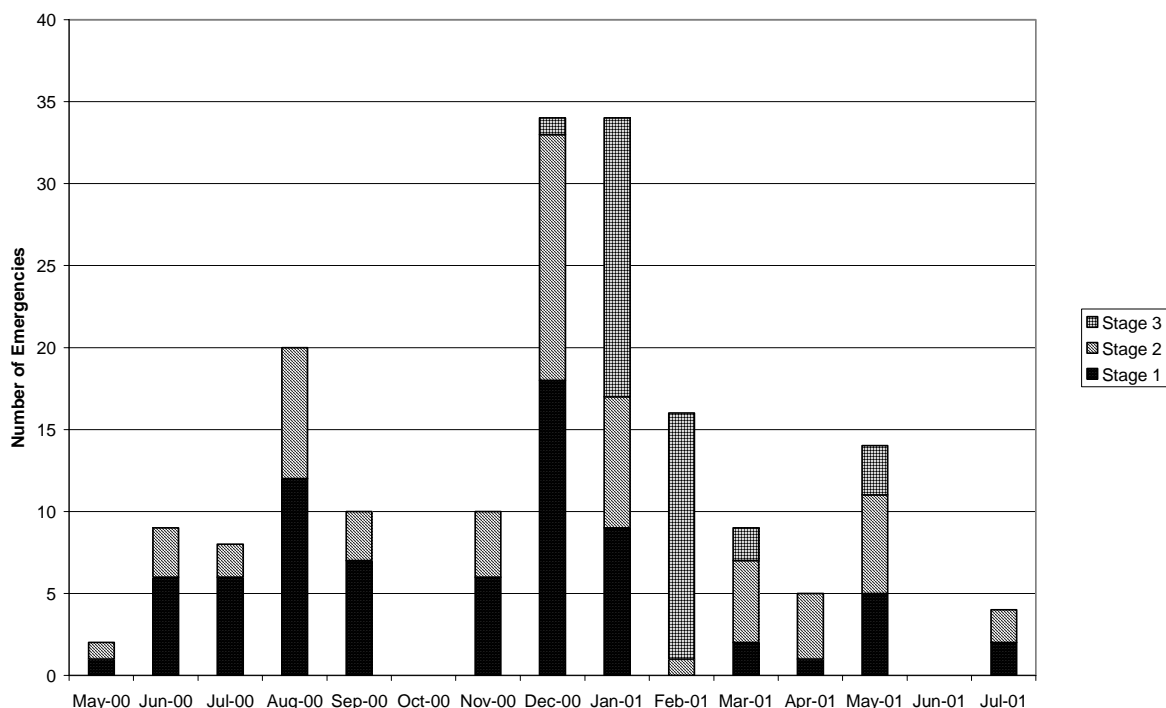
44 Stage 1: Operating Reserves are forecasted to be below the minimum
45 required by WSCC's Minimum Operating Reliability Criteria
46 (MORC) (this amount approximates 7% of the demand
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served by the Control Area). The CAISO, Investor Owned Utilities and Municipalities make public appeals for energy conservation.

Stage 2: Operating Reserves are forecasted to be at or below 5%. Continued public appeals for conservation accompanied by the CAISO ordering utilities to notify their customers on interruptible rate schedules to voluntarily interrupt their power.

Stage 3: Operating Reserves are forecasted to be at or below 1.5% or are projected to be less than the largest single contingency for the Control Area, whichever is greater. Continued appeals for conservation accompanied by the CAISO order for utilities to commence involuntary power interruptions to firm customers.

California Independent System Operator Emergencies



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3 **Q. You've mentioned power emergencies being declared and rolling blackouts, but**
4 **the lights haven't gone off in Washington. Do the warnings exaggerate the**
5 **situation?**
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9 **A.** No. These are "real" warnings and on many days the California utilities actually had
10 to implement rolling blackouts to maintain the integrity of the power system. Without
11 controlling the loads to match the available supply the entire electrical grid could
12 collapse. A catastrophic collapse of the electric grid could take days to restore
13 electrical service and could affect large portions of the western power grid. Rolling
14 blackouts are a clear indication that the electric power system is operating near the
15 edge of available generation and that all available supply alternatives have been
16 exhausted. The only remaining option is to control the level of demand to match
17 available generation through mandatory curtailment. This is implemented by utilities
18 flipping switches that cut off power to areas for a period of time and then restoring
19 power to the first area while curtailing power in another area.
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32 In the Northwest, we barely squeaked by last winter without the need to implement
33 rolling blackouts. However, some of our utilities had to pay extremely high prices to
34 purchase sufficient generation to avoid using blackouts to balance generation with
35 load. There have been reports that prices in December, 2000 reached a peak of
36 approximately \$5000 per MW-hour! This is an unheard of price level that I doubt
37 anyone ever expected to see. To me, this is a clear indication of a severe power
38 shortage. The region was lucky that the forecasted cold snap never materialized.
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1 **Q. Most of the warnings and all of the rolling blackouts you've mentioned are in**
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3 **California. Is the blackout problem really just a California problem?**

4 **A.** No. The Northwest's system is generally a winter peaking system. That means that
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6 getting through next winter will be our real challenge. We are ending this summer
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8 with the second driest hydropower runoff conditions in the sixty year record for the
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10 Columbia and Snake Rivers. This puts our hydropower generation at near record low
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12 levels and the fall period is statistically a very dry period. It is highly uncertain when
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14 rains will begin again and to what extent fall precipitation will restore some of the
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16 current energy deficit in the hydropower system.
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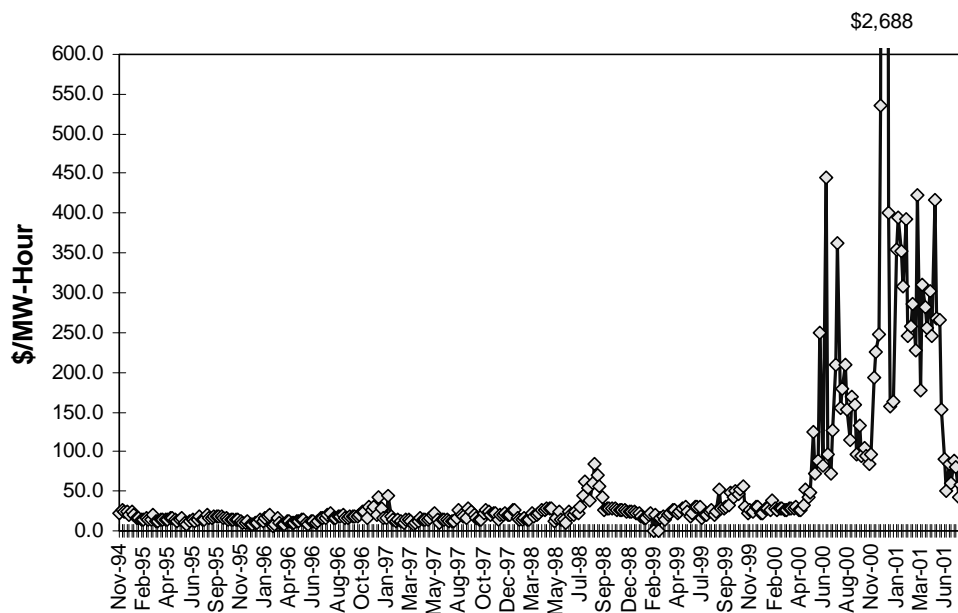
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20 In the mean time, regulatory policies have changed once again. After months of
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22 firmly declaring that it would not impose price caps on the California market, FERC
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24 did just that. However, the price caps were not only on the California market but on
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26 all wholesale power markets in the West. This created significant uncertainty
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28 concerning future regulatory intervention in the market and left many of the region's
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30 utilities with power supplies that are currently uneconomic under the FERC price caps
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32 because they are linked to emergency conditions and generation in the California
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34 market. The net result has been a recent significant reduction in actual and planned
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36 emergency generation that will be available to help meet the region's needs this
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38 coming winter. Many utilities that installed emergency generation are in the process
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40 of removing or canceling these units because these emergency generators cannot
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42 economically operate at prices as low as the FERC imposed caps. The region is far
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44 from being able to say that the crisis is over or that blackouts will not be necessary
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46 next winter to bring loads down to the level of available generation.
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3 **Q. How much of the problem is a weather problem, due to the extreme drought**
4 **we're experiencing this year?**

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7 A. Power system planners must anticipate unusual weather conditions in order to provide
8 a reliable power system. Historically, the Bonneville Power Administration (BPA),
9 the Pacific Northwest Utility Coordinating Council (PNUCC) and the Northwest
10 Power Planning Council (NWPPC) have all taken the vagaries of the weather into
11 account in their planning by using the worst water conditions in the sixty year historic
12 water record. This is called "Critical Water Planning." Using this planning standard,
13 the region has historically planned for sufficient generation to meet forecasted loads
14 during the worst drought on record. However, as the electric power industry began to
15 "deregulate" or "restructure," utilities no longer took the lead in building new
16 generation because the uncertainty of the new regulatory structure discouraged
17 investment in new resources. As a result, sufficient generation was not built in the
18 region to maintain the critical water planning standards. So the bottom line is that
19 while weather has a huge impact on loads and resources, normal utility planning
20 criteria designed to insure a reliable power system were not met. This has resulted in
21 a fundamental supply shortage in the region that manifests itself whenever a
22 combination of weather and economic growth cause loads to peak and/or generation
23 to be at critical levels. If this happens this winter, utilities could be forced to
24 implement rolling blackouts in Washington and throughout the region.
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44 **Q. The second thing you mentioned was dramatic price volatility. Can you explain**
45 **what has happened since the hearings last year?**
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1 A. Yes. The prices in the competitive wholesale power markets provide a clear
 2 reflection of the underlying supply and demand conditions in the region. Most
 3 competitive wholesale power that is traded in our region is transacted through what is
 4 call the Mid-Columbia (Mid-C) market. This market is an electrical trading hub in the
 5 region and is located in the area of the Mid-Columbia dams in central Washington. I
 6 have gone back several years and collected the prices that are reported weekly by
 7 *Clearing-up*, and industry publication that is broadly recognized in the region for its
 8 accurate and unbiased reporting of energy news. *Clearing-up* reports on the on-peak
 9 and off-peak prices for the previous week based on a survey that they conduct of
 10 market participants. I have plotted the average of the on- and off-peak prices and they
 11 are show in the following graph.



1 **Q. The chart you've provided shows prices decreasing lately. Does that mean we**
2
3 **don't have anything to worry about?**

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5 A. No. We are far from out of the woods on this energy crisis. Remember that the crisis
6 is fundamentally fueled by a shortage of generation. The latest market conditions are
7 influenced by two major factors. First, loads have generally been lower this summer
8 than initially forecast for much of the West. This has made it easier for utilities to
9 find sufficient supplies to meet actual loads. In addition, appeals for conservation and
10 the curtailment of many business operations due to the extremely high prices for
11 electric power have significantly reduced electrical demand not only here in the
12 region, but throughout the West. The second factor is the imposition of a price cap
13 throughout the Western States by FERC. The FERC price cap has limited the market
14 prices that power sellers may charge. The cap is set at approximately the variable cost
15 of the highest cost generator running in California during the last power emergency
16 declared by the CalISO. This regulatory cap appears to have combined with the
17 reduced loads to have a calming effect on market volatility, but I think it is too early
18 to be able to reach this conclusion.
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34 Among other things, the FERC caps are currently causing problems for many
35 Northwest parties because FERC maintained that it would not intervene in western
36 market and then suddenly, due to political pressure, it did just that. This left many
37 utilities with longer term power purchase contracts that were negotiated at relatively
38 high prices last winter and spring with a significantly lower power market in which to
39 sell excess power. This is causing a perverse financial backlash for many of the
40 region's utilities because they are now needing to increase power rates to pay for the
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1 financial loss of purchasing power at higher prices than the price that power can be
2 sold for now in the competitive market. BPA is one of these utilities and has recently
3 announced that it will need to implement what is called a cost recovery adjustment
4 clause (CRAC) which will further increase its rates beginning October 1st in order to
5 compensate for the revenue losses caused by lower market prices.
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13 **Q. In your expert opinion, what is causing the price instability experienced during**
14 **the past year?**
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16 A. Fundamentally, an inadequate supply of generation has caused the price instability.
17 Electric power is a commodity unlike any other because of its instantaneous quality.
18 Whenever a light is turned on in the region, a power plant must be ready to produce
19 exactly the same amount of power required by that light at the very instant that the
20 light switch is flipped. This means that utility managers must have sufficient
21 generation at their disposal for whatever load materializes, not only during the next
22 minute but the next hour, the next day, the next week and so on. Utility managers do
23 not have the option of choosing not to purchase the power that they forecast their
24 customers will demand because to do so would violate their “obligation to serve” and
25 would risk imposing rolling blackouts even though there was generation available.
26 When generation supply is tight, utility managers have to offer higher and higher
27 prices until someone agrees to operate higher cost power plants or to displace other
28 power sales by either interrupting loads or exercising curtailment provisions in
29 existing contracts. At the same time utilities are caught in a supply shortage in the
30 competitive wholesale market, retail customers are seeing no corresponding change in
31 their prices, so they have no incentive to reduce their demands. This is a classic
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1 situation where supply and demand cannot possibly seek equilibrium because demand
2 is sheltered from actual market prices for power and the utilities, as our buying agents,
3 are forced to purchase all the power we demand at whatever price. This leads to the
4 extreme volatility and unheard of price levels in Northwest's competitive wholesale
5 power markets last winter.
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12 **Q. Some people contend that the price instability we experienced during the past**
13 **year was the result of market manipulation by some bad actors who control**
14 **generation supplies. Do you agree with that theory?**
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18 **A.** While there have been many allegations of withholding generation, I have not seen
19 any credible evidence of wide scale use of this strategy. In fact, in most cases it was
20 found that generators were exercising all the flexibility they were permitted under
21 current regulatory constraints, recognizing that forced outages and required
22 maintenance sometimes limit generation when no one would like to see generation
23 reduced. The NWPPC released a study entitled *Western Power Market Prices:*
24 *Summer 2000*, in October 2000 that looked into the allegation that some market
25 participants were withholding generation. It concluded:
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36 "Much is made of market participants exercising market power
37 during this summer's price spikes. Clearly the prices we have seen
38 are well above a "competitive" price, if that is defined as the
39 operating cost of the most expensive unit on the system that must
40 run to meet load. The ability of market participants to ask for and
41 receive more than the competitive price can be defined as market
42 power. However, this is also the normal functioning of a market
43 when supplies are tight and there is no moderating effect of price
44 responsiveness. It is neither illegal or immoral.
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1 The Council did examine the generating records of most Northwest
2 power plants to see if there was evidence of manipulating the
3 market by "withholding," i.e., holding power off the market to
4 drive up prices. We found no clear evidence of such behavior.
5 Power plants were generally being operated as one would expect
6 given the characteristics of the plants. Hydro plants were typically
7 following load. Thermal plants were typically running "flat out" or,
8 in the case of units with higher operating costs, backed down
9 during the off-peak periods. Where there were operating patterns
10 that might be interpreted as withholding, the quantities involved
11 were too small to affect the market."
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14 While it is always convenient to blame a bad situation on a conspiracy, the conditions
15 that we have experienced in the West are easily explained by the failure to build
16 adequate generation. Moreover, even if you believed that market manipulation had
17 occurred, building more generation would still be the answer. If there were
18 substantially more generation available it would be very difficult if not impossible for
19 there to be successful market manipulation without significant monopoly power
20 vested in a few parties and FERC would not permit this condition to occur.
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31 **Q. Were you surprised by the market conditions during the past year?**

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33 A. No. It should have been no surprise to anyone who read the NWPPC system
34 reliability study, which they released in March, 2000. That study found that the
35 region was in serious jeopardy of not being able to meet loads and that the chance of a
36 reliability problem was building as loads continue to grow. This was a surprising
37 conclusion during the first half of 2000 because competitive power market prices
38 continued to be at extremely low levels with only occasional periods of moderate
39 price volatility. The price instability experienced in the second half of 2000 and into
40 2001 was consistent with the NWPPC's analysis of reliability problems. The
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1 NWPPC's *Western Power Market Prices Summer 2000* study drew the connection
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3 between tight supplies and price instability:
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6 "The Council believes that the market prices seen this summer are
7 a tangible manifestation of the fundamental problems identified in
8 the Council's power supply adequacy study of last winter. That is,
9 the prices are an indicator of approaching scarcity. This summer,
10 the system, which already is facing tight supplies, has been further
11 stressed by combinations of unusually high loads, poor hydropower
12 conditions, and forced outages of thermal units. There is little in
13 the way of price-responsiveness in demand to mitigate these prices.
14 Those who had available supply were able to ask for and receive
15 high prices. This combination of factors is precisely what leads to
16 the power supply adequacy problems identified in the Council's
17 earlier study. These factors apply not only to the Northwest but
18 also to the entire Western Interconnected System. There were some
19 additional factors acting this summer related to the design of the
20 California market, but they should not obscure the basic underlying
21 problem. Absent some action, the next similar event could result in
22 not only high prices but also a failure of the system to meet loads."
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28 This NWPPC finding was prophetic in that the region's power market reached an
29 unprecedented crisis only two months later, when in December 2000, the region's
30 utilities were bracing for a forecasted cold snap that would stress available generation
31 perhaps to its breaking point. This motivated the region's utilities to purchase power
32 at prices that some have reported as high as \$5000 per megawatt-hour! This is a clear
33 indication of the supply shortage combined with the utilities' obligation to serve
34 translating into extreme wholesale market prices. The region only narrowly averted
35 the NWPPC's final stage prediction of blackouts because the forecasted cold snap
36 failed to materialize.
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1 **Q. The third occurrence in the power market that you mentioned is the curtailment**
2 **of operations by large scale users. Can you explain what has happened?**
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4 **A.** The extreme price levels in the competitive power market combined with the price
5 volatility and uncertainty have made it difficult for many industrial users of electric
6 power to continue to operate. This has driven many of the region's largest power
7 users to shutdown operations and to send their employees home. The region's
8 industrial customers have either chosen to reduce operations because they cannot
9 produce their products at the current price they must pay for power, or been paid by
10 the serving utility to reduce their operations. In either event, a large block of
11 industrial demand was dropped, which has also help to reduce the prices in the
12 competitive market.
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24 An example of the dramatic demand reduction that the region has implemented is the
25 Direct Service Industries (DSI) served directly by BPA. These companies are mostly
26 the aluminum smelters. Nearly the entire DSI load that BPA serves is currently
27 displaced and BPA has made significant payments to the companies as compensation
28 for reducing their demand on BPA. In the short term, this strategy makes economic
29 sense for BPA because it was able to pay the DSIs less for shutting down operations
30 that it was forecasting it would have to spend in the competitive power market to buy
31 power to serve their loads. For the region, however, the curtailments and job losses
32 have further economic ramifications. Other non-DSI industries are also being
33 affected by both the competitive wholesale market and by increasing utility rates. The
34 loss of hundreds, if not thousands, of jobs and the reduced economic activity will
35 continue to ripple through the Northwest economy as the financial consequences of
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1 the energy crisis move through to retail rates causing additional impacts on end-use
2 customers.
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6 **Q. Do the price increases also result in conservation?**
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9 A. Conservation, as defined in the Northwest Power Act, is the efficient use of electric
10 energy. This means that consumers can produce the same level of energy service but
11 with less electric power by using more efficient lights, motors, buildings, etc. While
12 retail price increases do result in some “price induced” conservation, consumers only
13 install a small portion of the available efficiency gains without structured
14 conservation programs. In fact, when retail rates increase, the first and most
15 pronounced effect is curtailment of energy use, not “conservation” as defined in the
16 NW Power Act. This occurs when businesses shutdown because they cannot afford
17 the increased cost of energy and when consumers choose to not use electric energy.
18 However, any price induced load reductions whether conservation (increased
19 efficiency) or curtailment (doing without) will only occur when retail rates increase.
20 As noted previously, most of the consumers in the region see electricity rates that are
21 decoupled from the wholesale power market. Power rates are only changed when
22 regulatory bodies and governing boards decide that a rate increase is needed. If this
23 happens, it significantly lags wholesale market price spikes because utilities and
24 regulators prefer not to increase rates quickly and there are a number of procedural
25 processes that take time in order to provide a basis for any rate increase. Retail rate
26 increases are also damped due to blending the utility’s low cost legacy resources with
27 much higher cost market purchases.
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1 **Q. The fourth occurrence in the power markets that you mentioned were decisions**
2 **by businesses and regulatory agencies to increase electrical production at the**
3 **expense of the environment. What do you mean by that?**
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6 **A.** All human activity, including electricity production, has environmental impacts.
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8 Ideally, regional planners, businesses and regulators would forecast future electricity
9 supply needed to maintain an adequate level of power system reliability and make
10 rational and balanced decisions about the best ways to meet anticipated demand,
11 taking into account the impacts to important environmental values. The past year is
12 an excellent example of the difficulties that society faces when it fails to provide a
13 rational and balanced long-term energy policy. The failure of the electric power
14 system to maintain adequate levels of generation to meet our region's power needs
15 resulted in a regional energy crisis. Once the crisis was upon us, the region was
16 forced to operate in an "emergency" mode in which environmental considerations
17 were given less than the normal weight in order to maintain a reliable power supply
18 system. Ironically, these emergency operations have allowed a significant amount of
19 generation to be installed and significant amounts of power have been produced by
20 means that are much less environmentally friendly than the SE2 project. Governor
21 Locke's energy emergency declaration allowed environmental rules to be suspended in
22 order to increase production at existing power facilities. Diesel generators were
23 installed and operated for much of the early portion of this year at numerous locations
24 throughout Washington. Single-cycle natural gas turbines that are much less fuel
25 efficient have been installed in Washington and existing single-cycle turbines have
26 been operated at much higher levels than is expected. Environmental constraints in
27 the Columbia River power system designed to protect for salmon and steelhead listed
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1 for protection under the Endangered Species Act have been waived to maximize
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3 hydropower generation.
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6 **Q. Would building SE2 mean that these less environmentally friendly generation**
7 **facilities would stop operating?**
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10 A. If sufficient resources like SE2 are added to the regional power system, then the need
11 and the economic motivation to construct and operate emergency generation could be
12 eliminated. In addition, with the introduction of a power plant with the overall
13 efficiency of SE2, the economic dispatch order for operating power plants will
14 change. SE2 will be one of the most thermally efficient power plants operating in the
15 Northwest. This means that it will tend to operate under most conditions and it will
16 push other, older and less efficient power plants into operating less. This happens due
17 to economic dispatch, which mandates that the lowest cost power plants operate at
18 any time to meet the regional loads. When loads are less than the maximum
19 generating capability of all generators, some of the generation needs to be shut down
20 so that the amount of power generated will match the amount of demand. In this way,
21 the higher cost generators, which are also the less efficient, are high in the dispatch
22 order and they must be displaced. This results in less efficient generators not
23 operating.
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41 If the region could add an adequate supply of new high-efficiency generators to our
42 regional supply mix, it would also provide the region's energy policy leaders with the
43 flexibility to insist on environmental protection rather than being forced to agree to
44 allow emergency increases in low efficiency, high emissions generation to avert
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1 blackouts and to avoid industrial curtailment. It is clear from the emergency policies
2 of the last year that environmental regulations will take a back seat to the need to
3 maintain a viable electric power system that can protect the public health, safety and
4 economic welfare of the region's citizens.
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10 **Q. The fifth thing you mentioned occurring in the power market was the transfer of**
11 **money between participants in the market. Can you explain what you mean?**
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13 **A.** The competitive wholesale power market in the region has seen unheard of price
14 levels during the last year. The resulting market prices far exceeded the cost of
15 generation. This resulted in a significant transfer of wealth from the region's
16 utilities to those selling power in excess of their needs. An example of this wealth
17 transfer occurred from utilities in the region to BC Hydro's power marketing affiliate,
18 Powerex. BC Hydro's annual report indicates that it generated \$5.3 billion (Canadian)
19 in revenues from exporting electricity to the United States, approximately \$4.2 billion
20 more than in the previous year. While ratepayers in Washington are experiencing
21 significant increases in their power bills, BC Hydro actually refunded money to many
22 of its customers. I suppose it's not surprising that the Provincial Government
23 continues to oppose the development of SE2, which would help to ameliorate the
24 supply shortage and stabilize the high prices, when those high prices have provided so
25 much economic gain in British Columbia.
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42 **Q. The sixth occurrence in the power market you mentioned concerned BPA's**
43 **operation of the hydro system with respect to salmon. Can you explain what you**
44 **meant?**
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1 A. The federal hydropower system operates under a Biological Opinion (Biop) from the
2 National Marine Fisheries Service. The Biop specifies specific operational
3 requirements for the hydropower system to insure minimum impacts on salmon and
4 steelhead from hydropower operations. These operational requirements have the
5 force of the Endangered Species Act behind them, which means that BPA and the
6 other federal agencies treat them as “hard” constraints on power operations.
7 However, the nature and extent of the energy crisis made it imperative that operations
8 this year vary from those required in the Biop in order to maintain the best possible
9 level of system reliability. Beginning last February, BPA declared a “power system
10 emergency” so that it could exercise the provisions in the Biop that allowed the
11 required fish operations to be waived if maintaining adequate levels of power system
12 reliability was in danger. The power emergency was basically in effect throughout
13 this last spring and most of the summer while salmon and steelhead were migrating
14 out of the system. For this reason, nearly all of the flow and most of the spill
15 requirements were waived this year to enhance the probability that the federal dams
16 will be able to maintain power system reliability this coming winter. The impacts on
17 fish are difficult to estimate but the end result is that the supply shortage in this region
18 caused BPA to have to forgo important hydropower operations. These operations
19 could have been maintained if the region had more generation resources available to
20 meet our loads.
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43 Q. The last occurrence in the power market you mentioned was the BPA rate
44 increase. Can you explain what impacts wholesale power prices had on the
45 Bonneville Power Administration ?
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1 A. BPA's current power contracts expire on September 31, 2001 and new contracts have
2 been negotiated that will begin on October 1st. The process for negotiating these new
3 power contracts with all of BPA's customers in the region has taken several years.
4 During these negotiations the competitive market in California exploded. This
5 provided tremendous incentives for BPA's customers to place their entire load on the
6 agency. When BPA began to add up the demands for federal power it found that
7 there were approximately 3000 MWa more demand than BPA has federal resources
8 available. Thus BPA would have to purchase the additional 3000 MWa from the
9 competitive market. The resulting rate impacts on BPA's customers were initially
10 estimated to be more than 200 percent. Instead of attempting to increase rates by this
11 politically unacceptable level, BPA worked with its customers to reduce their
12 contractual demands and was able to manage the rate increase down to **ONLY 46**
13 percent. This was good news in comparison with the initial rate increase; however it
14 was still a very large increase that would have serious economic impact on the
15 region's economy. Most recently, BPA has announced that this rate increase will
16 probably not be enough because the current low market prices are causing its power
17 revenues to be less than it projected. This creates the ironic condition where BPA's
18 exposure to the competitive market makes it necessary to increase rates if market
19 prices are either higher or lower than BPA projects.

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41 Q. During the first round of hearings on this project, you testified that
42 "Washington State needs more electric generating capacity." Do you believe
43 that is still true in light of the changes in the power market over the past year?
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1 A. Yes. The fundamental problem of a shortage of generation in the region has been
2
3 fully demonstrated by the problems that have choked this region's economy and
4
5 stunned our energy leaders for the last 14 months. The region's runaway competitive
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7 market during June and again in December of 2000 was a clear demonstration of
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9 some of the negative consequences of a shortage of generation. We have yet to see
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11 the final consequence identified in the NWPPC and utility plans, blackouts!

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14 The large deficits that I testified about last year have also been borne out by updated
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16 power system studies by the PNUCC and the NWPPC. Both organizations have
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18 revised their previous studies to indicate continued system reliability problems due to
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20 a persistent generation shortfall even when the massive load reductions from industry
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22 shutting down and emergency generation in the region are taken into account.
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26 The most recent PNUCC Northwest Regional Forecast finds that the region is still
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28 expected to face more than a 2,320 MWa energy deficit for operating year 2002. This
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30 is a smaller shortage than was predicted by PNUCC last year for three reasons. First,
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32 there has been an 1150 MWa reduction in demand as a result of the shutdown of
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34 many industrial plants that consume large quantities of electricity and other business
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36 that chose not to operate at the high market prices the region has been experiencing.
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38 Second, the region's utilities have secured an additional 300 MWa of power from
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40 outside the region. Third, approximately 850 MWa of new generation is finally
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42 beginning to come on line in the region. Although, PNUCC is now predicting a
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44 smaller deficit than it was predicting last year, it continues to forecast a substantial
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1 deficit of 2320 MWa. This deficit will continue to create periods of price volatility
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3 when loads are high and generation from the hydropower system is limited.
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6 During the first half of this year, the NWPPC also conducted a series of technical
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8 analyses concerning the reliability of the Northwest power system. The most recent
9
10 of these studies was published on May 30, 2001. In this study, the NWPPC was
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12 concerned with balancing the delicate tradeoff between maintaining adequate levels of
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14 power system reliability during this summer as well as reliability next winter with the
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16 need to increase flows and spilling of water over the dams to help juvenile salmon
17
18 and steelhead to migrate past the dams to the ocean. The NWPPC was not only
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20 concerned with the supply crisis this summer but it was feared that power supplies
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22 could be seriously limited next winter when loads could peak in response to a cold
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24 snap. To provide the best possible level of power system reliability next winter would
25
26 mean that it critically important that the region manage the runoff in the Columbia
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28 and Snake Rivers to provide the maximum possible water in storage going into next
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30 winter. The NWPPC did a thorough analysis of new resources that they expected to
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32 be available to help meet regional loads during 2001. The NWPPC identified
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34 approximately 700 MW of internal combustion generation and a similar quantity of
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36 simple cycle gas turbines to be available in 2001. The NWPPC also included the
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38 addition of approximately 750 MW of combined cycle units (Klamath Falls
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40 Cogeneration and Rathdrum) and 200 MW of wind generation. Even with these
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42 estimates of approximately 2350 MW of new generation the NWPPC found that,
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44 without cutting back on planned fish operations, system reliability was predicted to be
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46 at unacceptably low levels for this next winter. Even when loads were reduced by
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1 approximately 1000 MW, next winter's system reliability remained at unacceptably
2 low levels with about a 17 percent chance that there would be blackouts this next
3 winter. As a result the NWPPC recommended that fish operations be curtailed and a
4 specific storage target for the federal storage reservoirs was recommended. However,
5 the NWPPC's studies produced a surprising result when it found that beyond about
6 2000 MW-months of stored energy in the hydropower system the reliability of the
7 system did not seem to improve. They attribute this diminishing return affect of
8 increased hydropower storage to be an indication of a real capacity limitation that can
9 only be solved by building more generating capacity or reducing peak loads. The
10 hydropower system can reduce the probability that there will be a blackout this winter
11 to about 12 percent but that is still more than twice as high as the NWPPC's goal for
12 the region of no more than a 5 percent chance of not being able to meet loads.
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27 **Q. Several new power projects are being talked about in the Northwest. In light of**
28 **these other proposals, does the state need the SE2 facility.**

29 **A.** Yes. As the NWPPC and PNUCC studies indicate, there continues to be a
30 fundamental supply shortage that, if not rectified, will periodically plunge the region
31 into wild price swings and perhaps blackouts. Yes there is a substantial amount of
32 new generation coming on line but it is hard to predict how much of the next wave of
33 development will actually materialize and operate as planned. There are many
34 technical, financial, institutional and regulatory hurdles for any major resource that
35 must be successfully addressed. Resource development is a risky business and
36 projects have failed and will continue to fail for a variety of reasons. However, unlike
37 in the past when the utilities sought recovery of their dry hole risks from ratepayers,
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1 the development risk is entirely borne by private developers today. This is a critical
2 fact that should reshape how EFSEC views the “need” standard. If the risks of a plant
3 not being built or of a plant going broke are borne by the developer then it seems that
4 it is in Washington’s consumers interest to have as many plants as possible permitted
5 to enter construction when the market conditions justify. This will inject new more
6 efficient power supplies when market conditions are tight. The resulting new supply
7 will stabilize prices and provide power to maintain adequate levels of system
8 reliability during unusual weather conditions.
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11 It is primarily for this reason that the Council's initial negative decision regarding SE2
12 shocked many in the electric power industry. The industry expects EFSEC to require
13 appropriate environmental mitigation and operating criteria, but the outright denial for
14 a project that set a new environmental standard in the region confused many industry
15 players and makes it unclear what standards are necessary to secure approvals for a
16 state-of-the-art power plant.
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33 **END OF TESTIMONY**
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